eXplorance®
Improvement at heart.

ANALYZING STUDENT COMMENTS IN ONLINE COURSE EVALUATIONS WITH BLUE TEXT ANALYTICS

blue
text analytics

www.explorance.com

©2016 eXplorance Inc.

CONTENTS

Executive summary....1
Blue Text Analytics: overview....2
Input: open-ended comments....3
- Definition....3
- How this input is gathered....3
- The benefits this provides....3

Integrated text analytics tools....4
- Definition....4
- How these tools were created....4
- The benefits these tools provide....4

Global dictionary, purpose-built for higher education....5
- Definition....5
- How this dictionary was created....5
- The benefits this dictionary provides....5

Themes group all related terms and concepts....6
- Definition....6
- How these themes are used....6
- The benefits these themes provide....7

Output: insightful, easy-to-read reports....8
- Definition....8
- How these reports are generated....8
- The benefits of these reports....10

In-depth analysis with advanced tools....11
- Definition....11
- The benefits of these advanced tools....11

Conclusions....12
About Provalis Research....13
About eXplorance....14

© 2016 by eXplorance, Inc. All rights reserved.

EXECUTIVE SUMMARY

Students submit a wealth of comments with online course evaluations, but universities and don't always hear the top-of-mind concerns of students.

A new solution called Blue Text Analytics has been designed to help post-secondary administrators process many thousands of student comments quickly and easily.

Blue Text Analytics provides:

- Tight integration of a range of text analytics tools with Blue course evaluation software
- A global dictionary purpose-built for higher education
- Reports organized around themes related to continuous improvement of the teaching and learning experience
- A gateway to more in-depth analysis with advanced desktop tools

Using Blue Text Analytics, colleges and universities can now quickly analyze thousands of comments from open-ended questions, and hear everything that their students are saying.

Students submit many comments with online course evaluations, but universities and colleges can't easily make sense of them. There is a wealth of unstructured data available in comments, but administrators have no feasible way to listen to these messages.

BLUE TEXT ANALYTICS: OVERVIEW

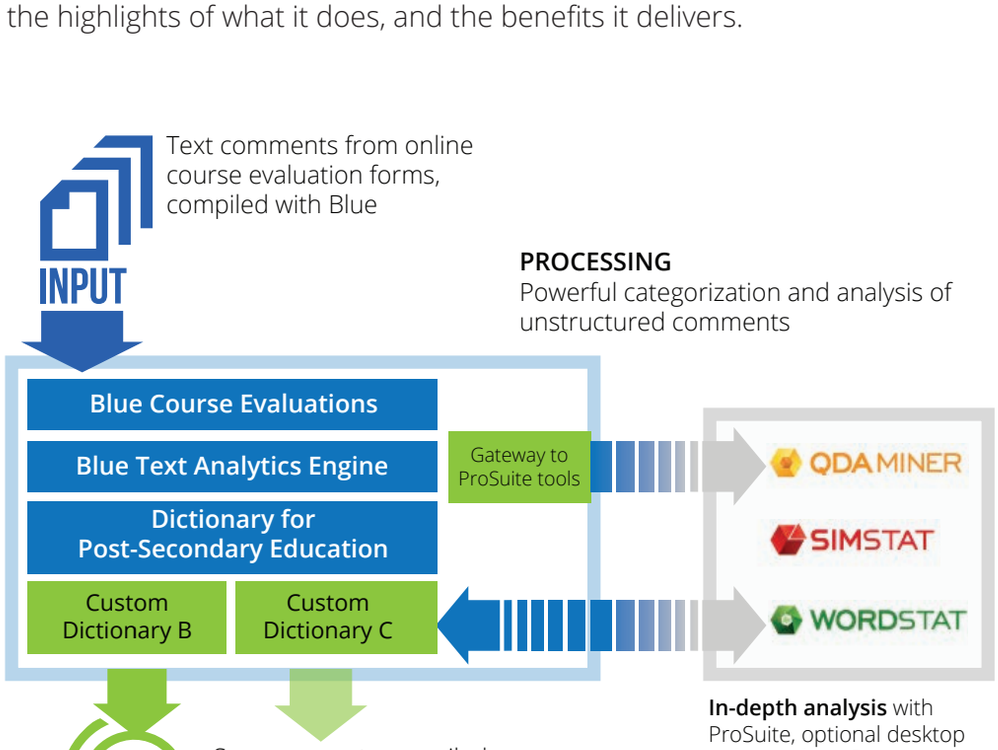
Colleges and universities need a more powerful type of text analytics to help them compile, analyze, and report on the patterns and insights available in student comments.

Now there's a new solution designed specifically to help post-secondary administrators handle many thousands of student comments quickly and easily. This new module, called Blue Text Analytics, is tightly integrated with the Blue online course evaluation system from eXplorance.

Figure 1 is a simplified block diagram showing the major parts of the Blue Text Analytics product. At the top, the input is freeform comments compiled from online course evaluations, then processed through the Blue software. At the bottom is the output: secure and easy-to-understand reports generated for every appropriate level of the university.

The following sections describe each part of the product in brief, covering the highlights of what it does, and the benefits it delivers.

FIGURE 1
Blue Text Analytics System Diagram



INPUT: OPEN-ENDED COMMENTS

DEFINITION

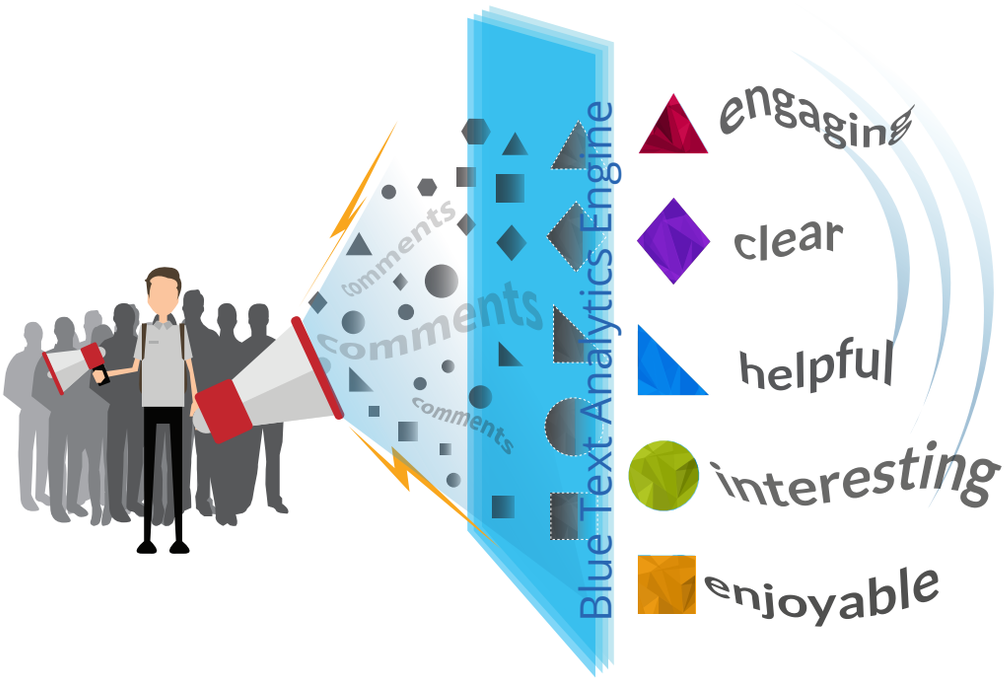
Natural language comments provided by students in appropriate fields on online evaluation forms.

HOW THIS INPUT IS GATHERED

On every online evaluation form, in places designated by the course evaluation designers, students have the option to key in freeform comments from the comfort of their room, study hall, coffee shop, or anywhere else they choose. These comments are compiled and anonymized by Blue, then fed into the text analytics engine for processing.

THE BENEFITS THIS PROVIDES

This automated compilation gathers all student comments together into one corpus ready for the text analytics engine to process. This saves the institution a massive amount of time that would otherwise be required to shuffle papers, type in comments, and secure the original forms.



INTEGRATED TEXT ANALYTICS TOOLS

DEFINITION

A tight integration of Blue with the proven text analytics tools from leading text mining software developer Provalis Research.

HOW THESE TOOLS WERE CREATED

Researchers and programmers worked for many years for one of the industry's leading firms with a 25-year track record of success. The input from student comments is tagged, categorized, grouped, and analyzed using a full range of text analytics tools.

THE BENEFITS THESE TOOLS PROVIDE

Blue Text Analytics is not confined to a single method. The Big Data from a mass of comments can be processed with the best tool to answer a particular question. Using a range of text analytics tools is more flexible and more powerful than relying on just one approach.

Tight integration with Blue simply adds another item to the workflow, while maintaining the same look-and-feel of the software, which flattens the learning curve.

Since Blue is linked to the institution's Student Information Systems (SIS), and already has the results from quantitative items in hand, Blue Text Analytics can cross-tabulate all three data sources to find the hidden messages in student feedback. This helps administrators hear the whole story, and gain more guidance to make the right decisions.

MORE THAN A DOZEN TIMES RICHER ANALYSIS

Suppose you answer a course evaluation with 10 quantitative and one open-ended item. With any other course evaluation system, you have 11 analysis points.

If you do the same with Blue — but without text analytics — you have 50+ analysis points, since Blue adds selected student information to the equation, such as course/student/instructor demographics from the SIS. This gives you a richer data set to analyze.

And if you do the same with Blue Text Analytics, you have 150+ analysis points — more than a dozen times richer — since you can now bring in all the themes from the dictionary generated by analyzing the comment box. All 150+ analysis points are connected by the software, so you can cross-tabulate to hear everything your students are telling you, going beyond "what" your students are saying to hear "why" they're saying it.

GLOBAL DICTIONARY, PURPOSE-BUILT FOR HIGHER EDUCATION

DEFINITION

A validated hierarchy of themes that pertain specifically to teaching and learning improvement in post-secondary education.

HOW THIS DICTIONARY WAS CREATED

Text analytics experts worked for over a year with 1.8 million anonymized comments from post-secondary students around the world, used with permission from their institutions. This purpose-built dictionary provides the detailed reference tables — also known as a taxonomy — used by the text analytics tools to categorize, tag, and merge comments.

This hierarchy of themes was developed, refined, and repeatedly validated against these comments to ensure that it accurately reflects how today's students communicate, especially the local expressions that occur in different regions. This dictionary is designed to reveal insights from open-ended items that support the continuous improvement of teaching and learning.

As shown in Figure 2, this dictionary understands dozens of common misspellings and typos that tend to occur, especially when typing on mobile devices. The accompanied numbers show how often each typo occurs in a given body of comments.

This specialized dictionary will be updated regularly to reflect the latest technologies, as well as the evolving expectations for the teaching and learning experience. These updates will keep the dictionary a "living document" that remains current and relevant.

THE BENEFITS THIS DICTIONARY PROVIDES

These themes were fine-tuned to help educators find insights in student comments that relate to the continuous improvement of the teaching and learning experience — insights that might otherwise be overlooked.

FIGURE 2
61 Ways to be "Enthusiastic"

Source: eXplorance, Provalis Research

EHNTHUSIASTIC 2	ENTHUSAIASTIC 1	ENTHUSIASITIC 5	ENTHUSIATSIC 4
ENHTUSIASTIC 1	ENTHUSAISTIC 8	ENTHUSICASITC 1	ENTHUSTIASTIC 17
ENTHEUSIASTIC 1	ENTHUSAITIC 1	ENTHUSICASTIC 1	ENTHUSUASTIC 4
ENTHHUSIATIC 1	ENTHUSASITIC 1	ENTHUSICATIC 3	ENTHUTIASTIC 2
ENTHIASTIC 1	ENTHUSASTIC 52	ENTHUSISASTIC 1	ENTTHUSIASTIC 1
ENTHISIASTIC 2	ENTHUSATIC 11	ENTHUSISATIC 2	ENTUISASTIC 1
ENTHOUSIASTIC 13	ENTHUSIACTIC 4	ENTHUSISTIC 7	ENTUSIASITC 1
ENTHSIASTIC 2	ENTHUSIADTOC 3	ENTHUSTATIC 2	ENTUSIASTHIC 2
ENTHSUASTIC 1	ENTHUSIAITIC 1	ENTHUSIASTC 5	ENTUSIASTIC 47
ENTHUAISTIC 1	ENTHUSIANSTIC 3	ENTHUSIASTCI 1	ENTUSIATIC 1
ENTHUASASTIC 1	ENTHUSIASTC 9	ENTHUSIASTICE 2	ENUTHUSIASTIC 1
ENTHUASIASTIC 2	ENTHUIASTIC 20	ENTHUSIASTICS 2	EUNTHUSIASTIC 1
ENTHUASIATIC 2	ENTHUISASTIC 2	ENTHUSIASTTIC 1	ANTHUSIASTIC 1
ENTHUASISTIC 1	ENTHUISIASTIC 3	ENTHUSIATHIC 1	ENTUSIASIC 1
ENTHUASTIC 30	ENTHUSIATSTIC 3	ENTHUSIATIC 185	ETHUSIASTIC 28
ENTHUDIASTIC 1			

THEMES GROUP ALL RELATED TERMS AND CONCEPTS

DEFINITION

A logical category that organizes numerous terms, phrases, and concepts into one coherent topic cluster. As shown in Figure 3, each theme in Blue Text Analytics includes multiple local expressions, concepts, idioms, phrases, and synonyms to catch all related expressions around the same topic.

HOW THESE THEMES ARE USED

These themes are included in the purpose-built dictionary for post-secondary education bundled with Blue Text Analytics. Each theme is intended to help administrators hear insights from student comments that help them improve the teaching and learning experience.

The master hierarchy of themes is compared against each comment, and any themes that match any comments are shown in the final reports. (Any themes that do not match any comments are not shown in reports to avoid unnecessary clutter.)good: count up how often a certain term appears, add up the frequency, and you'll see what the comments are all about.

But linguistic researchers warm that this simplistic number crunching provides no useful context for these terms, and yields little insight.

FIGURE 3
Sample Themes and Synonyms from Blue Text Analytics

APPROACHABLE:
approachable, calm, easy to talk to, laidback, good natured, is open to, open minded, relaxed

UNAPPROACHABLE:
aloof, chilly, detached, didn't care, distant, frigid, haughty, heartless, indifferent, intimidating, not easy to talk, overbearing, standoffish, stuck up, taciturn, too formal, unapproachable, unresponsive, unsympathetic

CLEAR:
accurate, clear, exact, explicit, precise, straightforward

UNCLEAR:
ambiguity, ambiguous, baffled, confusing, bewildered, blur, cryptic, enigmatic, vague, foggy, fuzzy, hazy, illegible, imprecise, in the dark, incomprehensible, inconsistent, lack of clarity, lost, muddy, not detailed, not explicit, obscure, opaque, puzzled, unclear, not well described

THE BENEFITS THESE THEMES PROVIDE

Themes overcome the simplicity of keywords or sentiment analysis by grouping together all related comments to create a clear context to help understand student comments.

As well, themes normalize the comments received by different departments or divisions using different course evaluation forms at different times. The higher education-specific themes in Blue Text Analytics enable administrators to make an apples-to-apples comparison between comments received from disparate sources over time.

OUTPUT: INSIGHTFUL, EASY-TO-RED REPORTS

DEFINITION

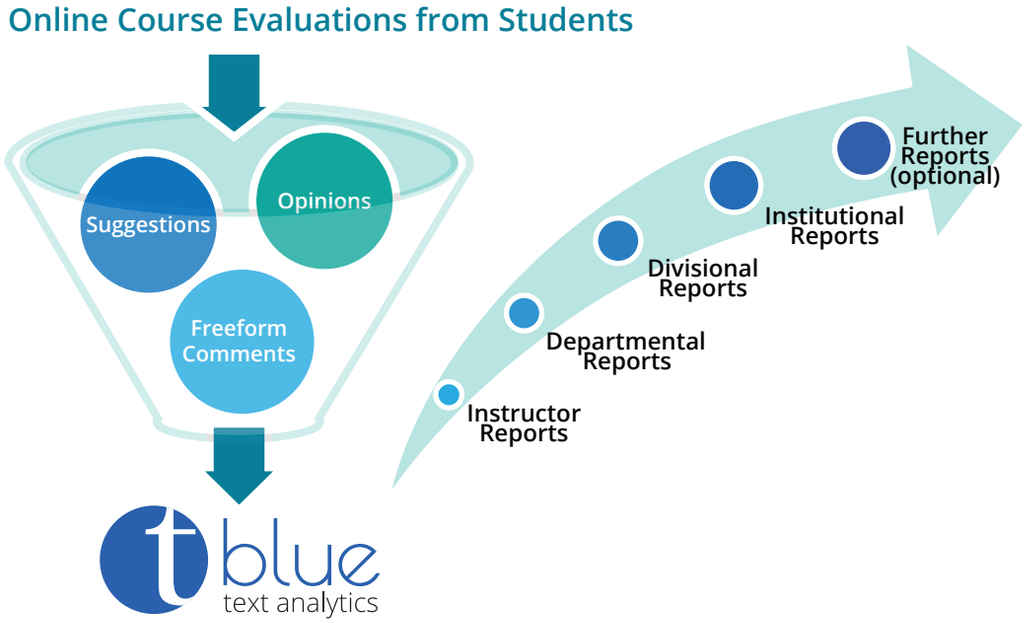
A range of easy-to-read, visual reports that present the themes, opinions, and suggestions found in the student comments

HOW THESE REPORTS ARE GENERATED

As shown in Figure 4, Blue Text Analytics generates static reports for every appropriate stakeholder of the university or college.

A report on all comments from each course section will be sent to each instructor who teaches a course or section. Depending on the policies of your institution, a summative analysis of aggregate comments can be generated for each appropriate stakeholder, such as department chairs, division-level administrators, and institution-level administrators such as IR and the Provost.

FIGURE 4
Blue Text Analytics Multi-Level Reporting



Each report shows the appropriate comments anonymized, organized by themes that provide deep context, and presented visually for quick review.

For example, Figure 5 shows a visual overview of a sample of 473 comments as a "theme cloud." This reveals that students generally consider instructors in this department to be helpful and supportive, and that students consider the material interesting and important. This visual also shows that many students comment on the difficulty of the material, a theme that can easily be explored in follow-up reports.

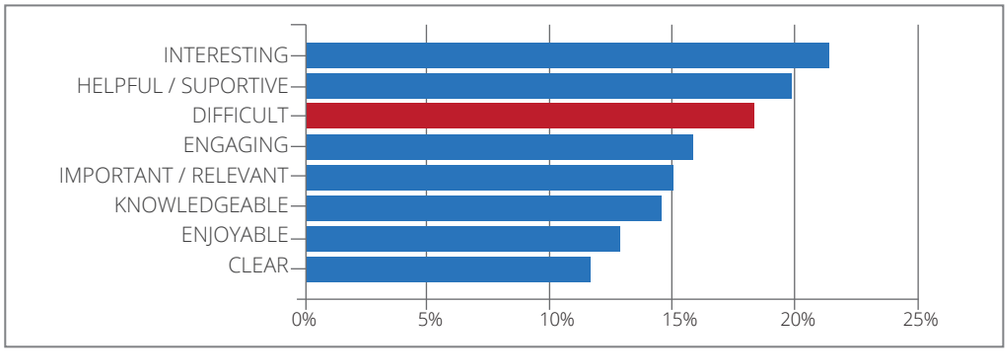
This first level of output from Blue Text Analytics goes far beyond a word cloud of keyword frequency. Each word in this cloud is actually a theme, and the size of the letters is based on numerous comments that were analyzed, merged, and linked together using the powerful text analytics software.

FIGURE 5
Theme Cloud from Blue Text Analytics

Figure 6 shows a bar chart and table of the most frequent themes in the sample of 473 student comments. Themes normally considered "positive" are shown in blue, while those considered "negative" are in red for contrast. Any feedback that touches on how complex the material is, or that refers to the instruction as complicated, are reflected in the "difficult" theme.

Many other reports are available, for instance, comments sorted by student year or by gender, or cross-tabulated to other departments, the university-wide norm, past years, and so on.

FIGURE 6
Chart and Table of Theme Frequency from Blue Text Analytics



Attributes [# of comments]	Overall [473]
INTERESTING	21.35%
HELPFUL / SUPORTIVE	19.87%
DIFFICULT	18.39%
ENGAGING	15.86%
IMPORTANT / RELEVANT	15.01%
KNOWLEDGEABLE	14.59%
ENJOYABLE	12.90%
CLEAR	11.63%

THE BENEFITS OF THESE REPORTS

As the end result of the powerful text analytics processing done by Blue Text Analytics, these reports present the patterns discovered and the insights found in the comments, which would otherwise not be detected.

SPECIAL FEATURE: ESCALATING RED-FLAG TERMS

Blue Text Analytics has a special feature designed especially for post-secondary institutions.

The system can highlight any designated red-flag terms such as “assault, attack, bomb, bully, cheat, gun, harass, kill, lonely, revenge, weapons” and so on to the attention of instructors and administrators, so they can immediately take proactive action.

IN-DEPTH ANALYSIS WITH ADVANCED TOOLS

DEFINITION

A set of desktop software tools that can provide even more in-depth analysis of student comments compiled with Blue Text Analytics, as shown in Figure [7].

THE BENEFITS OF THESE ADVANCED TOOLS

The easy-to-read, insightful reports generated by Blue Text Analytics are highly informative for most stakeholder purposes. Any administrator seeking more in-depth analysis can use the built-in gateway to export compiled comments to advanced desktop software called ProSuite. This software is available from the same developer, Provalis Research, that partnered with eXplorance to create Blue Text Analytics.

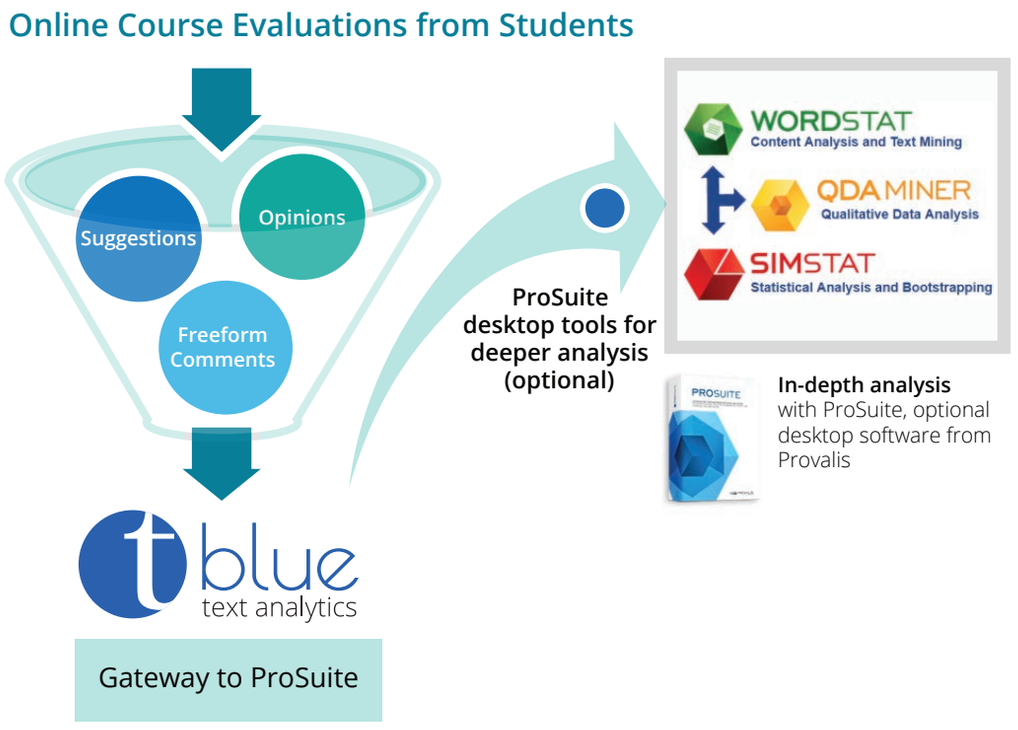


FIGURE 7
Blue Text Analytics In-Depth Analysis with ProSuite

CONCLUSIONS

This white paper describes how Blue Text Analytics provides a tight integration between Blue online course evaluation software from eXplorance with the proven text analytics engine and purpose-built dictionary for higher education created by Provalis Research.

With Blue Text Analytics, colleges and universities can now quickly analyze thousands of comments from open-ended questions and tune in on themes that are important to students that may not be covered in other feedback instruments.

To find out more about why higher education needs text analytics, see the white paper from eXplorance, "Hear Everything Your Students Are Saying: Why Text Analytics is Essential for Higher Education." http://goo.gl/dPJJ6U

And to find out more about how Blue Text Analytics can help you hear everything your students are saying in their comments, call eXplorance at +1 514-938-2111.

ABOUT PROVALIS RESEARCH

Provalis Research is a world-leading developer of text analysis software with ground-breaking qualitative, quantitative and mixed methods programs. Developing text analysis programs for more than 20 years, Provalis Research has a proven record of accomplishment in designing and bringing to market tools that are today essential to researchers and analysis specialists worldwide.

Headquarted in Montreal, Canada, the company was founded in 1989 by the current president Normand Péladeau.

Provalis Research software products are used by more than 2,000 institutions including universities, governments, NGOs, businesses, and in a wide range of applications such as political sciences, media analysis, survey analysis, business intelligence, market research, aviation safety, and international crime analysis. The company clients are located in more than 75 countries in all five continents.

For more information, see www.provalisresearch.com

ABOUT EXPLORANCE

At eXplorance, we believe that improvement is at the heart of progress. By providing tools that assess knowledge, competencies, and skills, we assist organizations in developing a culture of improvement. Blue helps build that culture by powering a cycle of continuous improvement resulting in strategic insights for future innovation.

Blue is a complete Learning Experience Management (LEM) system that includes applications for course and instructor evaluations, broad-based stakeholder surveys, psychometric and knowledge tests, 360 degree feedback, and more. Putting 'being better' at the forefront, Blue provides benchmarks, stakeholder assessments, sophisticated reporting, adapted insights and continuous monitoring.

Founded in 2003, eXplorance is a privately held corporation based in Montreal, Canada. Some of eXplorance's clients include RMIT University, University of Louisville, PPS International Limited, University of Toronto, Babson College, Fidelity Marketing, UAE University, loanDepot, University of Groningen and NASA.

For more information, visit www.explorance.com

Toll-free: 877.938.2111 (North America)
Phone: +1.514.938.2111
Fax: +1.514.635.6264

info@explorance.com

Follow us...

www.facebook.com/eXplorance

www.twitter.com/eXplorance

www.linkedin.com/company/eXplorance

© 2016 by eXplorance Inc. All rights reserved.

www.explorance.com